



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/634,637	08/08/2000	Ken Yamauchi	P108391-00010	4489

7590 02/27/2003
Arent Fox Kintner Plotkin & Kahn PLLC
Suite 600
1050 Connecticut Avenue NW
Washington, DC 20036-5339

EXAMINER

CHAUDRY, MUJTABA M

ART UNIT PAPER NUMBER

2133

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/634,637

Applicant(s)

YAMAUCHI, KEN

Examiner

Mujtaba K Chaudry

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 08 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to because:

- Figures 1-6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
- In Figure 12, reference number 63 for the synchronizer should be 230 as shown in previous embodiments.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

- The title should perhaps read as “**Method and Apparatus for Decoding Received Data in a Communications System.**”
- In the abstract, line 1 the term “data stream” should perhaps “data streams.”
- In the abstract, line 3 the second “are” should be changed to “and.”
- On page 1, line 17 the term “develop” should be omitted.
- On page 1, line 11 the term “decode” should be “decodes.”

Art Unit: 2133

- On page 16, line 9 the term “greeter” should be “greater.”
- The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Appropriate correction is required.

Claim Objections

Claim 1 is objected to because of the following informalities:

- In line 1, the term “multiplex” should be “multiplexed.”
- In line 2, the term “which” should be replaced with “wherein the” and the term “multiplex” should be “multiplexed.”
- In line 3, the term “which” should be changed to “wherein the.”
- It is not clear as what the applicant wishes to state in lines 13-15 of the claim.
- Applicant is requested to proof read the claim for other multiple minor informalities.

Appropriate correction is required. The examiner would like to point out that other claims are replete with similar problems which must be addressed. Claims should be written clearly and concisely.

Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

Art Unit: 2133

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vos (USPN 5363413).

As per claims 1, 3, 9 and 10, Vos substantially teaches (title and abstract) a method and apparatus for decoding data in a communications system. Vos teaches (abstract and col. 2, lines 35-48) a Viterbi decoder that includes a signal strength apparatus (analogous to signal-to-noise monitor in the present application) for providing a signal strength indication of the signal corresponding to a symbol time period. Vos teaches (col. 3, lines 53-68—col. 4, lines 1-2) an indexing function that is used to generate an index value that corresponds to each symbol time period and depends on the signal strength and the average signal strength at input. Vos teaches in a preferred embodiment this dependency is a difference between the signal strength indication and the average signal strength provided by a difference circuit (similar functionality of a comparator in the present application) at the output. The difference function compares the signal strength with the average signal strength (or threshold) by computing the difference. The index value is made available to a metric function that selects a channel metric (analogous to path metric in the present application) corresponding to the index value. This channel metric/path metric is provided to a decision circuit at input. With reference to figure 2, this is functionally depicted as an indexing switch selecting in accordance with the index value an entry point to the metric function. The decision circuit is arranged for weighting a decoder decision for the symbol time period in accordance with the channel metric at input.

Art Unit: 2133

Vos teaches figures 4 and 5 convolution codes which have specified coding rates as stated in the present application. Furthermore, referring to figure 2 and col. 3, lines 10-16, Vos teaches the signal at input may include a number of multi-path signals (analogous to a plurality of inputs in the present application), each having symbols representing encoded data modulated thereon, and additive noise due to the channel. Vos does not explicitly teach an initialization signal generation unit to generate an initialization signal that initiates the path metric/channel metric calculated by the Viterbi decoder as stated in the present application. The examiner would like to point out that the initialization of the path metric/channel metric is inherently included within the teachings of Vos since Viterbi decoding algorithm is being utilized. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the teachings of Vos by using an initialization unit to initialize the path metric/channel metric based on the Viterbi decoding algorithm. This modification or addition would have been obvious to one of ordinary skill in the art because one of ordinary skill would have recognized that in order to perform the Viterbi decoding algorithm it is necessary for a control signal that would initialize the path metric/channel metric.

As per claims 2, 4-8, and 11, Vos teaches, in view of the above rejections (col. 1, lines 20-68), the different path lengths, specifically path delays and phase differences, that result in destructive or constructive addition of the incident signals. Different path losses mean different signal powers or amplitudes. Different incident directions mean a slightly different signal frequency due to well-known Doppler effects. The net of all these properties is the receiving device will encounter a signal, a composite of all the incident signals, subject to periodic large reductions in signal power exhibiting rapid phase and small frequency variations during these

Art Unit: 2133

fades. Vos teaches data encoding that has been developed and used is convolutional encoding, wherein the transmitted symbols depend not only on the data to be transported but also on previous data that has been transported, as stated in the present application. This technique is known to work well in additive white noise situations and is readily adaptable to various specific transport environments. Vos teaches in a preferred embodiment, frequency modulation is employed and a frequency discriminator is employed. The examiner would like to point out that frequency modulation includes the data stream to be of BPSK, QPSK or 8PSK as stated in the present application. The examiner would like to point out that the predetermined value or the threshold value taught by Vos is by all means variable since the average of the signal strength will mostly likely vary.

Conclusion

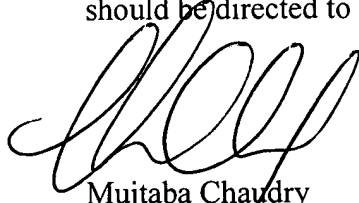
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Vos teaches a method and apparatus for decoding data in a communications system. Applicant is further invited to read/review additional pertinent prior art that has been appended to this office action.

Any inquiries concerning this communication should be directed to the examiner, Mujtaba Chaudry who may be reached at 703-305-7755. The examiner may normally be reached Mon – Thur 7:30 am to 4:30 pm and every other Fri 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, Albert DeCady at 703-305-9595. The fax phone number for the organization where this application is assigned is 703-746-7239.

Art Unit: 2133

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist at 703-305-3900.



Mujtaba Chaudry
Art Unit 2133
February 12, 2003



ALBERT DECADY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100